



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/601,492	06/23/2003	Robert John Mark	AM100012-P2	4877
25291	7590	11/14/2006	EXAMINER SHIN, DANA H	
WYETH PATENT LAW GROUP 5 GIRALDA FARMS MADISON, NJ 07940			ART UNIT 1635	PAPER NUMBER

DATE MAILED: 11/14/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/601,492

Applicant(s)

MARK ET AL.

Examiner

Dana Shin

Art Unit

1635

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 February 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3, 7 and 8 is/are pending in the application.
- 4a) Of the above claim(s) 8 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3 and 7 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☒ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- ☐ Notice of Informal Patent Application
- ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after first non-final rejection and has been entered on October 11, 2006. It is concluded that this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid.

Response to Applicant's Election/Remarks

Applicant's election with traverse of claims 1-3 and 7 in the reply filed on February 28, 2006 is acknowledged. Applicant's arguments, see page 4, filed on February 28, 2006, with respect to withdrawing restriction between SEQ ID NO: 3 and SEQ ID NO:4 have been fully considered and are persuasive. The restriction between SEQ ID NO: 3 and SEQ ID NO:4 has been withdrawn.

Status of Claims

Applicant has cancelled claims 4-6. Claim 8 is withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected group, there being no allowable generic or linking claim.

Accordingly, claims 1-3 and 7-8 are pending and claims 1-3 and 7 are currently under examination.

Oath/Declaration or Application Data Sheet

It is noted that the status of prior-filed applications, 09/858,155 and 09/425,501, as indicated in the current Declaration filed on June 23, 2003 is out-dated. Contrary to the “pending” status as checked on page 3 of the Declaration, it is found that both applications are now “abandoned”. Applicant must update the status of each application.

Priority

Applicant’s claim for the benefit of a prior-filed application under 35 U.S.C. 119(e) or under 35 U.S.C. 120, 121, or 365(c) is acknowledged. Applicant has not complied with one or more conditions for receiving the benefit of an earlier filing date under 35 U.S.C. [1] as follows:

The later-filed application must be an application for a patent for an invention which is also disclosed in the prior application (the parent or original nonprovisional application or provisional application). The disclosure of the invention in the parent application and in the later-filed application must be sufficient to comply with the requirements of the first paragraph of 35 U.S.C. 112. See *Transco Products, Inc. v. Performance Contracting, Inc.*, 38 F.3d 551, 32 USPQ2d 1077 (Fed. Cir. 1994).

The disclosure of the prior-filed applications, Application Nos. 09/858,155 and 09/425,501, fails to provide adequate support in the manner provided by the first paragraph of 35 U.S.C. 112 for one or more claims of this application. Neither of the prior-filed applications stated above discloses the instantly claimed subject matter, small interfering RNA (siRNA) molecules targeted to Pablo or instant SEQ ID NOs:3 and 4.

For the reasons stated above, the benefit of priority to the prior filed applications is thus denied, and the filing date of the instant application, June 23, 2003, will be the effective filing date for claims 1-3 and 7.

If applicant believes that the claimed subject matter in claims 1-3 and 7 of the instant application is disclosed in the prior-filed applications to which applicant claims the benefit under 35 U. S. C. 120, applicant is advised to point out the particulars in response to this Office action.

Specification

The disclosure is objected to because of the following informalities: The instant specification discloses Brief Description of the Drawings (pages 6-7) for Figures 1-13. However, the instant drawings, as filed, include Figures 1-17. Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 2-3 and 7 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 2 recites "wherein the Pablo polypeptide has *an* amino acid sequence of SEQ ID NO:2" in lines 1-2. It is unclear and internally inconsistent how a polypeptide can comprise one amino acid sequence.

Art Unit: 1635

Claim 3 is directed to any number of nucleic acids of double strands comprising SEQ ID NOs:3 and 4, because the instant claim recites “a sense strand nucleotide sequence of SEQ ID NO:3” and “an antisense strand nucleotide sequence of SEQ ID NO:4”, in which both sequences embrace any fragment thereof comprising any portion of SEQ ID NOs:3 and 4. Due to the ambiguities imparted by the claim language, one skilled in the art cannot ascertain the metes and bounds set forth by the claim, thus rendering claim 3 and its dependent claim, claim 7, indefinite.

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-2 and 7 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

To provide evidence of possession of a claimed genus, the specification must provide sufficient distinguishing identifying characteristics of the genus. The factors to be considered include disclosure of complete or partial structure, physical and /or chemical properties, functional characteristics, structure/function correlation, or any combination thereof.

As broadly claimed, the recited siRNA molecule reads on any portion, any size, and any structure of a Pablo polypeptide. In particular, claim 1 is so broad that it embraces any

Art Unit: 1635

polypeptide sequence of the Pablo gene, therefore, claim 1 reads on an siRNA molecule that inhibits any one of the Pablo transcript variants encoding different amino acid sequences. In order to provide evidence of possession of such broadly claimed genus, the specification must provide sufficient distinguishing identifying characteristics of the genus as stated above.

Although the instant specification discloses one amino acid sequence of the Pablo gene (SEQ ID NO:2) and four siRNA molecule sequences, the four siRNA molecules are not a representative sample of the genus of the Pablo siRNA molecules claimed in claims 1-2 and 7. Accordingly, one skilled in the art cannot determine whether the inventor was in possession of the invention of any siRNA molecules targeted to any portion of the Pablo polypeptide” as claimed in claims 1-2 and 7.

See *Vas-Cath, Inc. v. Mahurkar*, 935 F.2d 1555, 1562, 19 USPQ2d 1111, 1115 (Fed. Cir. 1991), which clearly states that “applicant must convey with reasonable clarity to those skilled in the art that, as of the filing date sought, he or she was in possession *of the invention*. The invention is, for purposes of the ‘written description’ inquiry, *whatever is now claimed*.” (see page 1117).

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-2 and 7 are rejected under 35 U.S.C. 102(e) as being anticipated by Mark et al. (US 2003/0215852 A1).

Claims 1-2 and 7 are drawn to an siRNA molecule, wherein the siRNA molecule inhibits the expression of a Pablo polypeptide of SEQ ID NO:2 in a eukaryotic cell, wherein the molecule inhibits apoptosis in the cell.

Mark et al., teach use of a Pablo siRNA molecule in S2 cells, CHO-K1 cells and in mice to inhibit Pablo production and expression (paragraphs 0290, 0293, and 0306-0308). They disclose the Pablo polypeptide SEQ ID NO:10, which is identical to the instantly claimed SEQ ID NO:2. Mark et al., also teach that Pablo is implicated in apoptosis (paragraphs 0040, 0042-0043).

Accordingly, all the structural limitations are met by Mark et al.

The applied reference, Mark et al. (US 2003/0215852 A1), has common inventors and assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

Art Unit: 1635

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-2 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miki et al. (*The EMBO Journal*, Applicant's citation number 13 of FORM 1449/PTO) in view of Miki et al. (*Cell Growth & Differentiation*, 1997, 8:195-202) and Fire et al. (US 6,506,559 B1).

Claims 1-2 and 7 are drawn to an siRNA molecule, wherein the siRNA molecule inhibits the expression of a Pablo polypeptide of SEQ ID NO:2 in a eukaryotic cell, wherein the siRNA inhibits apoptosis in the cell.

The instant specification discloses that Pablo is also referred to as KIAA0269 (pages 9-8) and implicitly teaches that Pablo is synonymous with WAVE (page 100).

Miki et al. (*The EMBO Journal*) teach identification of WAVE whose amino acid sequence is identical to that of the instant SEQ ID NO:2, which is encoded by the cDNA sequence of KIAA0269 (page 6933, Figure B and Results). They show that WAVE (or applicant's instant Pablo) functions downstream of Rac via dominant-negative mutant construct

Art Unit: 1635

studies, demonstrating that Pablo is implicated in actin reorganization. They teach that WAVE is a protein member of WASP (Wiskott-Aldrich Syndrome Protein), which was originally identified as the gene product whose mutation is responsible for Wiscott-Aldrich syndrome. Miki et al. do not teach Pablo siRNA molecules.

Miki et al. (*Cell Growth & Differentiation*) teach that WASP antisense oligonucleotide treatment in cells *in vitro* reduces the expression of WASP and abolishes accumulation of actin filaments as well as microvesicles, demonstrating that WASP plays a critical role in the the microvesicle formation process by regulating the actin cytoskeleton (page 198). They teach that the WASP antisense oligonucleotide experiment has enabled them to determine whether WASP is required for microvesicle formation (page 198).

Fire et al. teach that short interfering double-stranded RNA (siRNA) molecules mediate sequence-specific inhibition of gene expression, which is known as RNA interference (RNAi) phenomenon (columns 3-6 and column 14, lines 52-53). They further teach that the siRNA-mediated inhibition (RNAi) is at least 100-fold more effective than an equivalent antisense approach (column 3, lines 25-32).

It would have been obvious to one of ordinary skill in the art, at the time the instantly claimed invention was made, to make an siRNA molecule targeting the Pablo gene sequence in order to inhibit the expression of the Pablo gene in cells *in vitro*. One of ordinary skill in the art would have been motivated to inhibit the expression of Pablo by targeting its cDNA sequence of Miki et al. (*The EMBO Journal*) since it was art-recognized practice to inhibit the expression of a gene in order to investigate the cellular functions of the gene by means of administering a sequence-specific antisense oligonucleotide to cells *in vitro* as taught by Miki et al. (*Cell Growth & Differentiation*). In light of the combined teachings of the two Miki et al. references, one of

Art Unit: 1635

ordinary skill in the art would have been motivated to make a sequence-specific nucleic acid inhibitor for Pablo in order to further elucidate biological roles of Pablo in actin reorganization-related cellular events because both WASP and its related protein WAVE (the instant Pablo) are shown to mediate signaling pathways pertinent to actin cytoskeletal expression/functions. The skilled artisan would have been motivated to further investigate the biological roles of Pablo in relation to actin reorganization because it is art-recognized knowledge that actin is implicated in a myriad of central cellular processes such as mitosis, proliferation, and differentiation.

Alternatively, the skilled artisan would have been motivated to study the biological roles of Pablo in cells by inhibiting its expression/function in order to understand the pathological processes of WASP, because Pablo (or WAVE) is a protein family member of WASP, whose mutations cause Wiscott-Aldrich syndrome. Further, the skilled artisan would have been motivated to substitute the antisense oligonucleotide of Miki et al. (*Cell Growth & Differentiation*) for the siRNA molecule of Fire et al. in order to inhibit the expression of Pablo in cells *in vitro* with a reasonable expectation of success, because Fire et al. expressly teach that an siRNA molecule can be used to inhibit gene expression and that an siRNA molecule is far more effective than an equivalent antisense. Accordingly, the claimed invention, taken as a whole, is *prima facie* obvious.

Conclusion

No claim is allowed.

Of note on the record, SEQ ID NOs:3 and 4 appear free of the prior art.

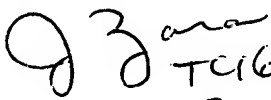
Art Unit: 1635

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dana Shin whose telephone number is 571-272-8008. The examiner can normally be reached on Monday through Friday, from 8am-4:30pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Peter Paras can be reached on 571-272-4517. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Dana Shin
Examiner
Art Unit 1635


JANE ZARA, PH.D.
PRIMARY EXAMINER